Chapter 18
Comparisons, contrasts, and a case study: Innovation implications of New Zealand's scores in values and personality

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18.1 Introduction

In the last two decades, there has been a marked increase in the amount of multinational data freely available to researchers. This has allowed cross-national comparisons on a wide variety of topics (see, e.g., Rosling, 2009). Recently, some of these data sets have been used to investigate the various relationships between the national means of psychological traits and corresponding levels of innovation.

While the results of these investigations are theoretically interesting, they have clear implications for national policies, as well. It is the purpose of this paper to show how these results translate into suggestions for those in a position to set and change policies. We do this using New Zealand as a case study, and comparing its national traits to those of other nations who score well on innovation measures.

The theoretical links between innovation and the personality traits, values, and creativity measures to be discussed have been set out elsewhere (see Rinne et al., in press; Rinne et al., in preparation; Steel et al., in press). The paper will begin, therefore, with a brief review of the most recent research into the links between these national measures of these characteristics and innovation scores. Next, a comparison of various countries' scores to those of New Zealand will be conducted. This will lead to a set of recommendations for policy based on those comparisons.

18.2 Recent empirical findings

18.2.1 Innovation and personality

The connection between personality and innovation has not been well researched beyond the level of the individual person. However, a recent study by Steel et al. (in press) reports findings that suggests that there is an association between national innovation and means scores on NEO-PI (R) *Openness to Experience* and *Agreeableness*. In that study, the innovation scores were drawn from the Global Innovation Index (GII; INSEAD, 2010) and the International Innovation Index (III; Andrew et al., 2009). The GII and III each have an input and output component. Openness to Experience was significantly related to both components in both indices, suggesting that this characteristic may influence not only the preparation for innovation but the outcomes, as well. Agreeableness, on the other hand, was only reliably related to the Innovation Input component. The authors interpreted these results to suggest that greater Openness to Experience in a population meant greater receptivity to new ideas and products: first, by those laying the groundwork to get the idea to market; and second, by those that comprise the market, itself.

Agreeableness had been expected to be associated with innovation primarily because much of the success in innovation, after the actual inventing is accomplished, rests on feelings of trust and willingness to cooperate amongst the actors in the innovation network. It was not surprising, then, that this personality trait was predictive of the scores on the input side of the innovation scores.

18.2.2 Innovation and values

The relationship between values and behaviour is a complex issue (Bardi and Schwartz, 2003). However, at least at the individual level, it is generally understood that values underpin behaviour to greater and lesser extents. Less is certain about the relationship between national or cultural values and the behavior of nations and cultural groups. Recently, research conducted by the TUI Technology User Innovation (TUI) Group, at Lincoln University, New Zealand, has been exploring this macro-level connection, using innovation as the focal behaviour.

Two separate studies have been conducted. In the first, Rinne et al. (in press) have found that Hofstede's dimensions of Power Distance and Individualism were both reliably associated with scores from the Global Innovation Index, although in opposite directions. Innovation scores decreased as Power Distance increased, whereas the same scores tended to increase as Individualism increased. This pattern was consistent across both innovation inputs and outputs. In a follow-up study, Steel et al. (2011, June) found that Schwartz's value dimension of Conservation was inversely related to the composite GII score, while Inglehart's and Welzel's two value dimensions (Traditional/Religious versus Secular/Rational, and Survival versus Self-expression) were both associated with GII scores. Specifically, innovation scores increased as a nation's cultural values tended towards the Secular/Rational and the Self-expression ends of the dimensions.

Taken together, these findings strongly suggest that those cultures that prize individual autonomy and a 'flat' or horizontal power structure tend to be the most innovative.

18.2.3 Values and creativity

It is, perhaps, not altogether surprising that there have been several studies that have investigated the affiliation between creativity and innovation. Inventiveness is the inception of the innovation process, and inventiveness requires some spark of creativity. More than that, however, bringing a new idea to the marketplace often requires overcoming significant hurdles. Thinking in novel ways may be quite a help in such instances.

The research examining creativity and innovation has been almost entirely focused organisational levels. There have been both strong theoretical and empirical connections made (see, e.g., Alves et al, 2007; Amabile, 1988). However, as Rank, Pace, and Frese (2004), have noted in their review of creativity and innovation, the lack of research on cross-cultural values and creativity has created a substantive gap in the literature. This remains so. With this in mind, and given the links between values and innovation already established in her earlier research, Rinne and her colleagues have conducted a study looking at the connection between three of Hofstede's cultural values dimensions – Power Distance, Individualism, and Uncertainty Avoidance – and creativity, as measured by two independent indices: the Global Creativity Index (GCI; Florida, 2007) and the Pro Inno Europe Design, Creativity, and Innovation Index (DCII; Hollanders and van Cruysen, 2009). The preliminary results have suggested that only Individualism had a significant relationship with either of the measures of creativity. This is in line with the findings by Rinne et al. (in press) and Steel et al. (2011) regarding values and innovation, particularly with respect to the positive correlation between Individualism and innovation, and self-expression and innovation.

The brief summary of the results given above talk about the general case. It may prove useful to illustrate how these findings apply to a particular nation. Because much of the research has come from a New Zealand-based group of researchers, and because we are unabashedly self-interested, we felt it may be best to start with the country with which we are most familiar. Besides, as the authors of the 2010 Global Innovation Index stated, "The unique demographic and economic conditions and geographic location make New Zealand an interesting case study for understanding the processes which foster innovation" (p. 20). We agree. Thus, the following section provides a brief characterisation of New Zealand, and international comparisons to nations of similar size or cultural background, using the scores with which the TUI group has been working over the last two years.

18.3 New Zealand: Profile and Comparison

New Zealand's standing on the scores from the two major innovation indices (Global Innovation Index and the International Innovation Index), as well as various other national level variables, can be found in Table 1. These latter variables are limited to those that have been found to be related to innovation. The table gives ranks, where available, for these measures for Australia and Norway. We will return to these nations' rankings after discussing New Zealand.

As can be seen, New Zealand is fairly well placed in the innovation rankings. In 2010, the Global Innovation Index had the country ranked as 9th of 132 countries; similarly, though not quite as positively, the International Innovation Index pegged New Zealand at 26th of 110 countries. It is clear that this success in innovation is no guarantee of grand wealth, however. New Zealand ranks only 29th on the list of GDP per capita, falling well behind other nations who have a lower rank in innovation scores (e.g., Norway, Ireland, and our neighbours, Australia). This should not be entirely surprising; the inputs into a nation's wealth go far beyond its level of innovation. The "innovation equals wealth" is far too simplistic equation.

Still, innovation may make the difference between capitalising on raw resources and squandering them. An innovative nation will add value to the resource prior to shipping it off-shore, thus accumulating more wealth for the same level of resources as a lesser innovative nation. In light of this, we shall now move to a comparison of national characteristics.

According to the ranking of the personality scores, New Zealand's population has relatively high scores on Agreeableness; one that is also quite open to new and stimulating experience.

Table 1: Ranks of scores on various measures for New Zealand, Australia, and Norway

Variable	**Category**	**Subcategory**	**New Zealand**	**Australia**	**Norway**
GDP per capita (USD, 2006)[1]			*25,179*	*37,434*	*66,964*
Innovation	Global Innovation Index	Overall	26	22	18
		Inputs	30	24	10
		Outputs	25	20	25
Personality	Openness		12	1	-
	Agreeableness		13	12	-
Cultural Values	Power Distance[2]		66	54	60
	Individualism[2]		7	2	15
	Conservation[3]		47	32	-
	Traditional/Religious vs. Secular/Rational[4]		28	18	3
	Survival vs. Self-expression[4]		5	7	2
Creativity(n=47)	Global Creativity Index		17	11	8
		Talent	15	14	3
		Technology	19	17	16
		Tolerance	9	13	4

Notes:

1. from http://www.nationmaster.com/graph/eco_gdp_percap-economy-gdp-per-capita
2. Hofstede cultural values
3. Schwartz value dimension
4. Inglehart and Welzel value dimensions

Its cultural values scores are indicative of a nation that is exceptionally egalitarian, seeks and tolerates non-traditional views, and strongly encourages autonomy and self-expression.

With respect to creativity, New Zealand is just above the median for technology, crosses into the top 30% for talent, and is in the top 25% for scores on tolerance.

One of the findings from social psychology is that you tend to learn more about what makes you distinct by comparing yourself with similar others; anything that is different sets you apart from your reference group. We can apply this in the case of countries, as well. It can be argued, and has in many a pub across Australia and New Zealand, that these two populations are very alike in many ways and quite distinct in others. When we compare the New Zealand scores in the table, above, to our trans-Tasman neighbours, Australia, we see that that country is, indeed, very similar to us in many respects. Where it differs radically from New Zealand, at least as far as these measures indicate, is in its mean level of Openness to Experience and in its creative talent. This latter aspect may, in part, be due to its size: all other things being equal, we would expect to see more talented people in a larger country. The greater score on openness, however, suggests a country that is more inclined to seek out new knowledge and stimulation. Combined with a larger talent pool, its moderately greater score on individualism, and its lower score on conservatism, this creates a population that, on average, would highly value individual initiative when pursuing novelty. In business, this would likely equate to greater support for risk-taking in new ventures. With sufficient capital to cover failed ventures, this may lead to greater wealth in the long run. Thus, one implication for New Zealand is that it may wish to consider fostering an increased acceptance of risk in order to increase their GDP.

Norway also shows a substantially larger GDP than New Zealand, but ranks very similarly in innovation scores, and has approximately the same size population. Like Australia, though, where it differs most markedly from New Zealand is in its creative talent scores and, to a lesser extent, creative tolerance scores. Intriguingly, it is also much less traditional yet still strongly endorses self-expression and individualism. Once again, then, we see a combination of creativity and an individualistic cultural orientation associated with, in Norway's case, a very large GDP. While the resource base differs between the two countries, it may be that moving a country toward a more secular/rational orientation leads to greater national wealth. For a fuller explanation of why this might be so, the reader is referred to Inglehart and Welzel (2005) and Steel et al. (2011).

18.4 Policy Implications for New Zealand

It is difficult to come up with suggestions for short-term or immediate policies for New Zealand. Much of what has come out of the comparison of profiles, above, has been based on cultural values, and, if one is bold (or perhaps foolish) enough to wish to change these, then it is inevitably a long-term project. This is not to say that a start could, or should, not be made. Policies that encourage a rationalist perspective, one that examines long-held knowledge for its veracity, would be indicated. As well, policies aimed at increasing the size and depth of a country's talent pool are also likely to be beneficial. In this latter endeavour, New Zealand is handicapped by its size, but it is an attractive country and may be able to build this pool through active international recruitment in the short-term, and an emphasis on technology training for the longer-term.

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